

Tax Agency Capitalizes on Cisco ACI SDN Migration, Improves Service Delivery With NETSCOUT

Protects Availability and Performance With Single-Vendor Smart Visibility and DDoS Prevention Solution

OVERVIEW

The Challenge

- Visibility gaps in updated Cisco ACI SDN, 40GB network, and data center environments
- DDoS attack attempts on internet links threatened agency operations, collection services, and taxpayer data

The Solution

- nGeniusONE® Service Assurance platform
- InfiniStreamNG® appliances
- nGenius® 5000 series packet flow switches
- Arbor Edge Defense (AED)

The Results

- Improved visibility validates ACI SDN investment, data center services performance
 - Maintained integrity of public-facing tax collection services
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Customer Profile

This national government agency has a broad charter that includes providing financial, monetary policy, and border enforcement services. To the residents of this country, however, the agency is best known for its role as the nation's income tax collector.

Operating national-level tax collection and financial processing requires a major service delivery commitment from this agency. As result, 35,000+ employees provide customer service and financial transaction support to help process millions of annual income tax returns from residents, as well as expatriates living and working in the country.

The Challenge

The information technology (IT) commitment involved in keeping the agency securely up and running involves the efforts of 50 different teams. These IT resources have led the agency through numerous digital transformations targeted at enhancing service delivery efficiency and safeguarding operations integrity.

The agency had recently completed a migration to a Cisco® Application Centric Infrastructure (ACI) software-defined network (SDN) offering improved 40GB link speeds. In the planning stages for some time, the move to Cisco ACI was designed to better support data center operations with a leaf-and-spine SDN architecture that offered the promise of reduced configuration cycles and increased flexibility, all of which was designed to support improved service delivery processing to taxpayers.

While the technical conversion itself had completed, the regional IT team subsequently found themselves trying to work through visibility limitations in this new SDN environment, particularly involving the updated 40GB network links and within data center operations.

In addition to wanting to visualize upgraded performance, another IT team involved in this project was focused on protecting the integrity and availability of these SDN links. For the IT team, this effort was critically important, as these high-speed Internet links supported customer-facing tax and financial transactions that had been targeted in frequent cyberattacks.

While solutions to address these network link visibility and security issues were required, the IT team was mindful of an organizational emphasis on reducing vendor management obligations. Too many tools from too many suppliers were taxing operating expense budgets and staffing resources.

Solution in Action

The agency identified a single-vendor solution for this two-phase project, with NETSCOUT® providing:

- A “Visibility Without Borders” approach that closes network link and data center blind spots with InfiniStreamNG (ISNG) and Packet Flow Switch (PFS) data sources providing views into performance of their new Cisco ACI SDN environment, 40GB network links, and internet services.
- Performance analysis of the upgraded network and data center operations, with the nGeniusONE Service Assurance platform using smart data generated by ISNG fed by PFS technology for real-time monitoring of this environment.
- Network link and internet service security protection, with the Arbor Edge Defense (AED) inline security appliance deployed at the network perimeter (i.e., between the internet router and firewall) to safeguard performance and integrity of the Cisco ACI environment, as well as taxpayer application services. In this manner, AED provided a solution for blocking any inbound DDoS attacks, thereby protecting the availability of the network, business services, and stateful security devices, such as firewalls.

Benefiting from the recommended-practices guidance offered by NETSCOUT resources, the IT team installed ISNG and PFS appliances at two primary data centers, opting to use the following configuration options to improve network traffic processing and visibility:

- Tapped all Cisco ACI SDN traffic to acquire visibility into the network fabric that had been lacking without smart data source instrumentation.
- Filtered specific network traffic for the needs of agency business groups.
- Forwarded PFS-conditioned traffic to the agency’s downstream cybersecurity monitoring tools to enhance efficiencies of these installed vendor technologies.

With this solution, the IT team was able to transition to a service-oriented approach that capitalized on broader east-west traffic visibility within data center operations, thanks to NETSCOUT’s compatibility with techniques (e.g., ERSPAN) that ensured better network reliability and availability.

The deployed ISNG appliances generated smart data in real time from the agency’s network traffic, which enabled the IT team to use nGeniusONE’s performance analytics to proactively manage network, application, and business service performance, including a Web-based tax payment application used by residents to process payments and make other financial inquiries.

The Results

For this IT team, doing agency business, better is always the desired result of any digital transformation. In this regard, NETSCOUT’s nGeniusONE Service Assurance solution and Packet Flow Switches were deployed seamlessly in a manner that supported business continuity for tax collections and financial processing, all without any adverse impact to the constituents they serve.

From a cybersecurity perspective, NETSCOUT’s AED perimeter protection approach has served as a “can’t live without it” business continuity solution for this IT team. With AED protecting customer-facing internet service links, as well as the high-speed Cisco ACI environment in their updated data center operations, the IT team has assured agency leadership that tax collection business operations will continue unabated and with integrity for the nation’s residents. The IT team is also taking advantage of AED’s outbound filtering capabilities to detect and block malicious traffic from local hosts to the internet, which further prevents potential threats from impacting agency business.

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Corporate Headquarters
 NETSCOUT Systems, Inc.
 Westford, MA 01886-4105
 Phone: +1 978-614-4000
www.netscout.com

Sales Information
 Toll Free US: 800-309-4804
 (International numbers below)

Product Support
 Toll Free US: 888-357-7667
 (International numbers below)

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